

**WHAT IS CLAIMED IS:**

1                   1. An open type luminaire lens comprising:  
2                   an elliptical reflective lens having a metalized exterior surface and a  
3                   prism section covering at least twenty-five percent (25 %) of said elliptical reflective  
4                   lens, said prism section including and array of external reflecting prisms of varying  
5                   predetermined shapes and varying predetermined sizes whereby a desired efficient  
6                   light distribution is produced.

1                   2. The open type luminaire lens of claim 1 wherein said elliptical  
2                   reflective lens is manufactured from glass and said metalized surface is comprised of  
3                   an aluminum coating.

1                   3. The open type luminaire lens of claim 1 wherein said elliptical  
2                   reflective lens is manufactured from glass and said metalized surface is comprised of  
3                   a silver coating.

1                   4. The open type luminaire lens of claim 1 wherein said elliptical  
2                   reflective lens is manufactured from plastic and said metalized surface is comprised  
3                   of an aluminum coating.

1                   5. The open type luminaire lens of claim 1 wherein said elliptical  
2                   reflective lens is manufactured from plastic and said metalized surface is comprised  
3                   of a silver coating.

1                   6. The open type luminaire lens of claim 1 wherein said prism  
2                   section covers substantially all of said elliptical reflective lens.

1                   7. The open type luminaire lens of claim 1 further including a  
2                   diffuse material insert.

3

4                   8.     An open type luminaire lens comprising:  
 5     a non-circular reflective lens having a metalized exterior surface and a prism section,  
 6     said non-circular reflective lens having a shape generally defined by the combination  
 7     of two parabolas, said prism section including and array of external reflecting prisms  
 8     of varying predetermined shapes and varying predetermined sizes, said  
 9     predetermined shapes and predetermined sizes defined by the relationship of angles  
 10    A, B and P where angle A is defined by a counter clockwise angle from the leading  
 11    point of a first prism to the convergence point of said first prism and a next adjoining  
 12    prism, angle B is defined by a clockwise angle from the leading point of said first  
 13    prism to the convergence point of said first prism and said next adjoining prism and  
 14    angle P is starts along minor axis ( $y=0$ ) and has a value of 90 degrees along the  
 15    major axis  $x=0$  with angle A, angle B and angle P having the following relationship:

16                   Angle A =  $P + 8$ ; for values  $0 \leq P \leq 9$ ; and  
 17                   Angle A =  $21.305\text{Ln}(P) - 41.714$ ; for values of  $10 \leq P \leq 44$  degrees;  
 18                   and  
 19                   Angle A =  $(-0.0078)P^2 + 0.9513P - 4.6875$ ; for values  $46 \leq P \leq 90$   
 20                   degrees  
  
 21                   Angle B =  $0.0049P^2 - 0.7615P + 91.437$ ; for  $0 \leq P \leq 44$  degrees;  
 22                   and  
 23                   Angle B =  $0.0075P^2 - 0.9243P + 93.869$ ; for values  $46 \leq P \leq 88$   
 24                   degrees.  
 25                   Angle B =  $P - 20$ ; for values  $89 \leq P \leq 90$  degrees.

1                   9.     The open type luminaire lens of claim 8 wherein said elliptical  
 2     reflective lens is manufactured from glass and said metalized surface is comprised of  
 3     an aluminum coating.

1                   10. The open type luminaire lens of claim 8 wherein said elliptical  
2                   reflective lens is manufactured from glass and said metalized surface is comprised of  
3                   a silver coating

1                   11. The open type luminaire lens of claim 8 wherein said elliptical  
2                   reflective lens is manufactured from plastic and said metalized surface is comprised  
3                   of an aluminum coating.

1                   12. The open type luminaire lens of claim 8 wherein said elliptical  
2                   reflective lens is manufactured from plastic and said metalized surface is comprised  
3                   of a silver coating.

4                   13. The open type luminaire lens of claim 8 further including a  
5                   diffuse material insert.

6                   14. An open type luminaire lens system for maximizing light  
7                   distribution comprising:  
8                   an open type reflective luminaire lens having a generally elliptical  
9                   shape, said luminaire lens having a metalized exterior surface;  
10                  an external prism section disposed on said luminaire lens having  
11                  external reflecting prisms of varying predetermined sizes and varying predetermined  
12                  shapes whereby desired light distributions of different types can be produced by  
13                  changing the sizes and shapes of said external reflecting prisms whereby the shape  
14                  of the open type reflective luminaire lens is defined by the surface envelope general  
15                  equation  
16                   $x^2/a^2 + y^2/b^2 = 1$  with  $z =$  being in a range from 0.0 to 11.0,  $a$  in a range from 3.0  
17                  to 12.0 and  $b$  in a range from 3.0 to 12.0.

1                   15. The open type luminaire lens system of claim 14 wherein said  
2                   elliptical reflective lens is manufactured from glass and said metalized surface is  
3                   comprised of an aluminum coating.

1                   16. The open type luminaire lens system of claim 14 wherein said  
2                   elliptical reflective lens is manufactured from glass and said metalized surface is  
3                   comprised of a silver coating.

1                   17. The open type luminaire lens system of claim 14 wherein said  
2                   elliptical reflective lens is manufactured from plastic and said metalized surface is  
                    comprised of an aluminum coating.

1  
2                   18. The open type luminaire lens system of claim 14 wherein said  
3                   elliptical reflective lens is manufactured from plastic and said metalized surface is  
4                   comprised of a silver coating.

5                   19. The open type luminaire lens system of claim 14 further  
6                   including a diffuse material insert.

7                   20. The open type luminaire lens system of claim 14 whereby said  
8                   predetermined shapes and predetermined sizes of said prisms are defined by the  
9                   relationship of angles A, B and P where angle A is defined by a counter clockwise  
10                  angle from the leading point of a first prism to the convergence point of said first  
11                  prism and a next adjoining prism, angle B is defined by a clockwise angle from the  
12                  leading point of said first prism to the convergence point of said first prism and said  
13                  next adjoining prism and angle P is starts along minor axis ( $y=0$ ) and has a value of  
14                  90 degrees along the major axis  $x=0$  with angle A, angle B and angle P having the  
15                  following relationship:

16                         Angle  $A = P + 8$ ; for values  $0 \leq P \leq 9$ ; and  
17                         Angle  $A = 21.305\text{Ln}(P) - 41.714$ ; for values of  $10 \leq P \leq 44$  degrees;  
18                         and  
19                         Angle  $A = (-0.0078)P^2 + 0.9513P - 4.6875$ ; for values  $46 \leq P \leq 90$   
20                         degrees

21                         Angle  $B = 0.0049P^2 - 0.7615P + 91.437$ ; for  $0 \leq P \leq 44$  degrees;  
22                         and

Angle B =  $0.0075P^2 - 0.9243P + 93.869$ ; for values  $46 \leq P \leq 88$  degrees.

degrees.

Angle B =  $P - 20$ ; for values  $89 \leq P \leq 90$  degrees.